



# Installation Instructions

## Vacuum Pump P/N's 22640, 22641

This vacuum pump is designed for drag racing engines requiring a supplementary vacuum evacuation source. When properly installed, it will create a vacuum inside the engine helping to improve ring seal as well as controlling blow-by.

In testing, we have found that this vacuum pump will produce more vacuum than standard, race prepared OEM-style pumps. Keep this in mind when retrofitting your motor with the Moroso Vacuum Pump.

We do not recommend running the vacuum pump faster than 6000 RPM pump speed. Consult your Moroso catalog for drive kit components. A good starting point is to use a 2-1/2" or 3" diameter crankshaft pulley.

### INSTALLATION

1. Determine location for mounting of vacuum pump assembly. The location should be as close to the crankshaft as possible to eliminate whipping in the V-belt.

**NOTE: Inlet and outlet of the pump is determined by the direction of pump rotation. If the pump is rotating in a clockwise direction, the first fitting in that direction is the exhaust and the second is the intake. The exact opposite is true if the pump rotates counterclockwise. (see diagram on back)**

2. For Motor Plate applications use Moroso P/N 63910 Vacuum Pump Bracket. Vacuum Pump must be mounted on passenger side with this bracket.

3. Install the rubber O-rings onto the supplied AN fittings, screw the fittings into the pump housing. Make sure not to crush the O-rings. The fittings supplied are specially made for this vacuum pump. Do not use any other type.

4. Plumb the intake side of the pump to the valve cover using -12AN fittings. Do not use a catch can between the pump and valve cover, any oil that runs through will help lubricate the pump and is not detrimental to its performance. When installing a new vacuum pump, adding (approx.) a tablespoon of oil through the Inlet Port will help the break-in process.

5. Plumb the exhaust side of the pump to a breather tank, such as Moroso P/N 85470 Dry Sump Breather Tank. A breather tank is necessary to catch any oil residue that is pulled from the engine during operation.

6. After determining pump speed, select and install a drive pulley (we recommend Moroso Vacuum Pump Pulley 64885), onto the mounting hub and secure with the supplied 1/4-20 x .750" bolts. Tighten these bolts to 16 ft.-lbs. in a cross pattern.

7. Install the correct length drive belt and tighten properly. Do not over-tighten the belt. Doing so will cause excessive side load on the pump bearings.

8. Check that all bolts are tight and that the pulley on the vacuum pump is aligned with the pulley on the crankshaft. (Please note that the pump should not exceed 6000 RPM pump speed when calculating proper crank pulley size.)

### BREAK-IN

The vane material used in this pump requires an initial break-in to seat the vanes to the pump housing for maximum vacuum. During this time, you will notice a black dust or black residue exiting the pump exhaust. This is normal. As the vanes mate to the housing bore, this condition will stop.

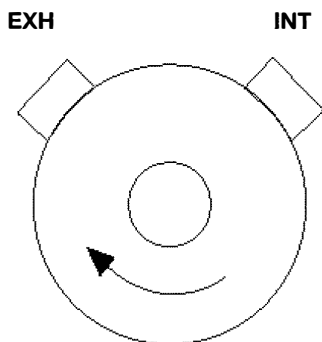
As recommended in the above installation instructions, adding (approx.) a tablespoon of oil through the Inlet Port will help in the break-in process.

## MAINTENANCE

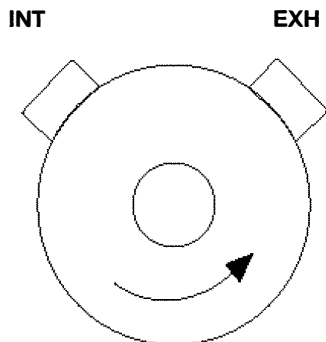
***It is recommended that your vacuum pump be cleaned on a regular basis. The use of approved safety glasses is recommended when working on this vacuum pump.***

1. Remove vacuum pump from engine, take off the pulley and remove the four cover bolts.
2. Slide the lid/shaft assembly out of the housing and remove the vanes from the rotor slots, make sure to note the vane notches face toward the shaft and a worn-in vane curves to match the shape of the rotor.
3. Remove the washers and bearing from the housing.
4. Clean all pieces with carb/choke cleaner or brake cleaner and inspect for wear or damage. If rebuilding is necessary, use Moroso Vacuum Pump Rebuild Kit P/N 22645 for 3 Vane Vacuum Pumps or P/N 22646 for 4 Vane Vacuum Pumps.
5. Lubricate the bearing and washers with oil and replace in the rotor housing in the following order: washer, bearing, washer.
6. Place vanes into rotor slots with the curve of the vane facing out and the notch facing in toward the rotor shaft, as noted in step #2, to clear the washers and bearing. When all vanes are in place, hold them in place while installing the assembly into the housing.
7. Align the cover dowel pins and secure the cover with the bolts. Also at this time, while looking into one of the fittings, make sure the pump spins freely and all the vanes are seated in the rotor.
8. Torque the cover bolts to 16 ft.-lbs., replace the pulley and reinstall the pump on your engine.

## PUMP ROTATION DIAGRAM



**CLOCKWISE ROTATION**



**COUNTERCLOCKWISE  
ROTATION**